



Better Buildings Residential Network Peer Exchange Call Series: *Remote Energy Efficiency Assessments – the New Normal?*

June 25, 2020

Agenda and Ground Rules

- Agenda Review and Ground Rules
- ASHRAE Guidance for Building Operations During COVID-19
- Opening Poll
- Residential Network Overview and Upcoming Call Schedule
- Featured Speakers:
 - **Richard Faesy**, Energy Futures Group
 - **Stephanie Weiner & Ryan Behling**, New England Smart Energy
 - **Dan Ridings**, CLEAResult
- Open Discussion
- Closing Poll and Announcements

Ground Rules:

1. **Sales of services and commercial messages are not appropriate** during Peer Exchange Calls.
2. Calls are a safe place for discussion; **please do not attribute information to individuals** on the call.

The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.

Better Buildings Residential Network

Join the Network

Member Benefits:

- Recognition in media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

Commitment:

- Members only need to provide *one number*: their organization's number of residential energy upgrades per year, or equivalent.

Upcoming Calls (2nd & 4th Thursdays):

- Jul 9: The Increased Focus on Health in Buildings
- Jul 23: Energy Efficiency Funding for Residential Programs: Challenges and Opportunities
- Aug 9: The State of Energy Efficiency Programs: Where Are We Now?

Peer Exchange Call summaries are posted on the Better Buildings [website](#) a few weeks after the call

For more information or to join, for no cost, email

bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn & click Join



Richard Faesy
Energy Futures Group



Virtual and Remote Energy Assessments

SURVEY RESULTS

Richard Faesy, Energy Futures Group

Energy Futures Group

Vermont-based clean energy consulting firm established in 2010

Areas of Expertise

- Energy efficiency & renewable energy
- Program design
- Integrated resource planning
- Policy development
- Expert witness testimony
- Building codes
- Evaluation
- Cost-effectiveness

Range of Clients

- Government agencies
- Advocates
- Regulators
- Utilities

Clients in 45 states and provinces plus regional, national and international organizations.



Agenda

- Overview of Survey Goals and Process
- Remote vs. Virtual Energy Assessments
- Survey Respondents
- Survey Results
- Takeaways and Opportunities
- Next Steps



Overview of Survey Goals and Process

- COVID-19 has halted in-premises programs, so there is an opportunity for virtualization of assessment processes
 - Already in the plans due to loss of lighting, but COVID accelerated research
- Survey gathered information on “virtual” and “remote” energy assessments
 - What exists?
 - What could be on the horizon for residential, low-income and C&I energy efficiency programs?
- Survey was sent to 28 firms and received 19 responses
- Respondents were split into “remote” and “virtual” assessments and questions were aimed at the specific type of assessment they provide

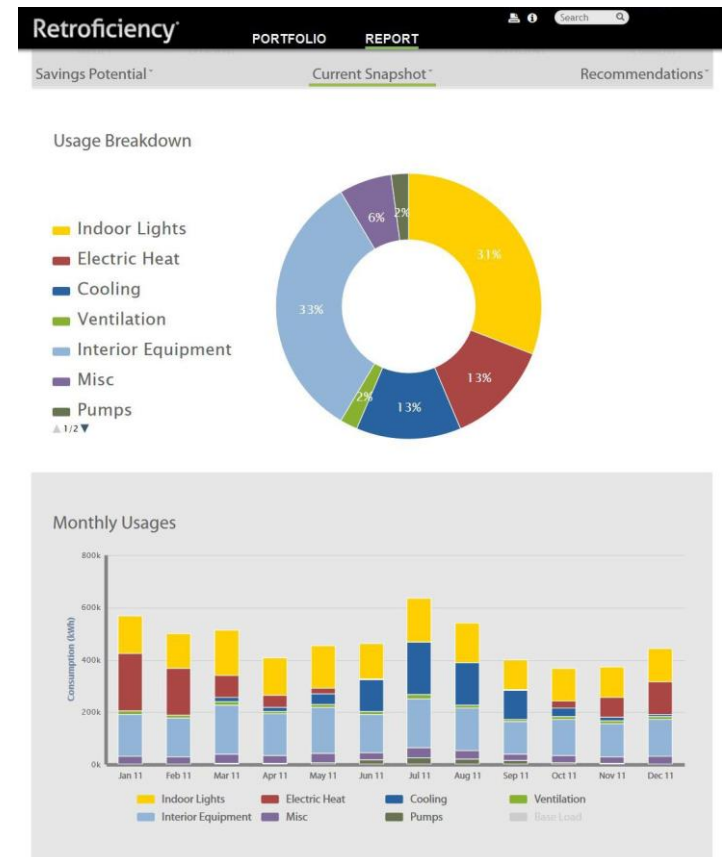
“Remote” Energy Assessments

- Auditors conducting building assessments remotely using tools such as video conferencing, phones, or photos
- “Virtual Pre-Assessments” in Connecticut
- What many residential programs are offering currently



“Virtual” Energy Assessments

- Software that completes tasks such as collecting and analyzing public/utility data to prospect for leads, develop a building model, pre-screen customers and/or develop preliminary energy efficiency recommendations



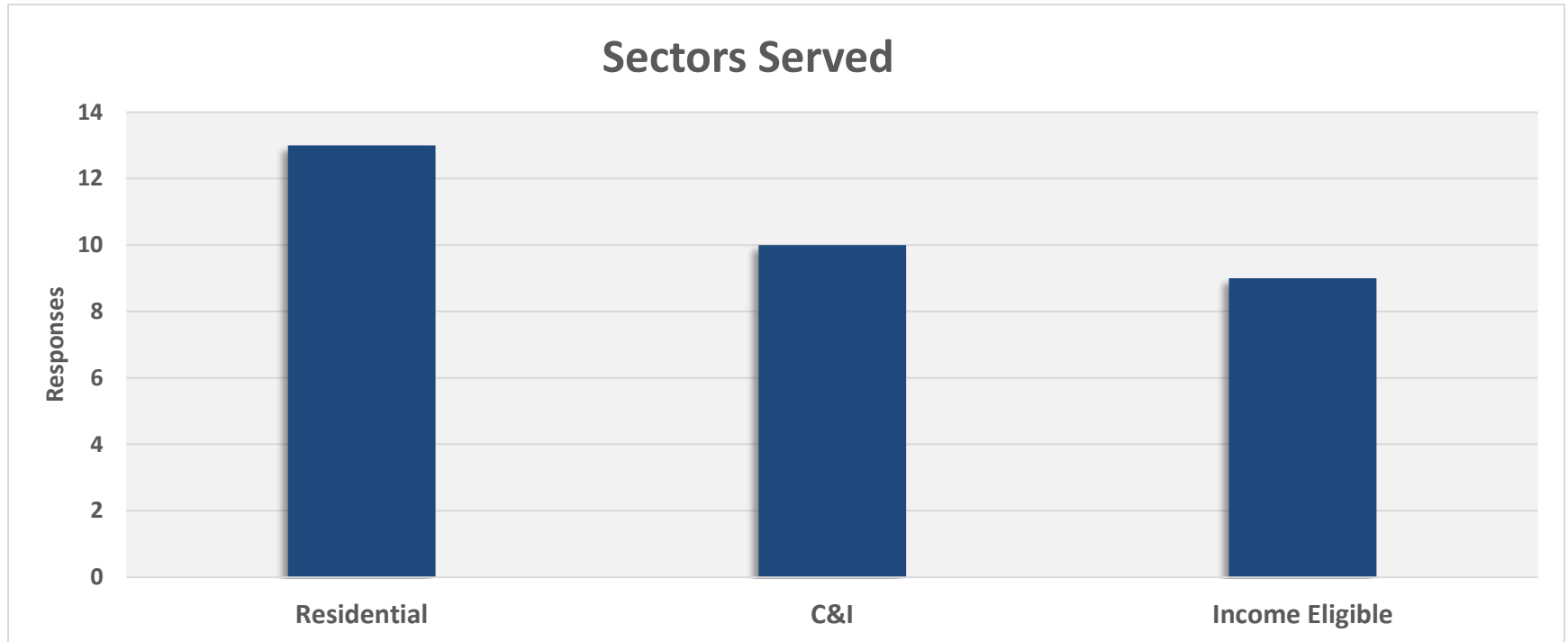
Survey Respondents

- Avangrid
- Advanced Energy Intelligence
- Center for EcoTechnology
- ClearlyEnergy/NEEP
- CMC
- Ecosystem Energy Services
- Energy Hippo
- Energy X Solutions
- Eversource
- Home Energy Analytics
- InversEnergy
- MyHeat
- Oracle/O Power
- PSD
- RI CAPS
- RISE
- Sealed
- SourceOne
- Streem

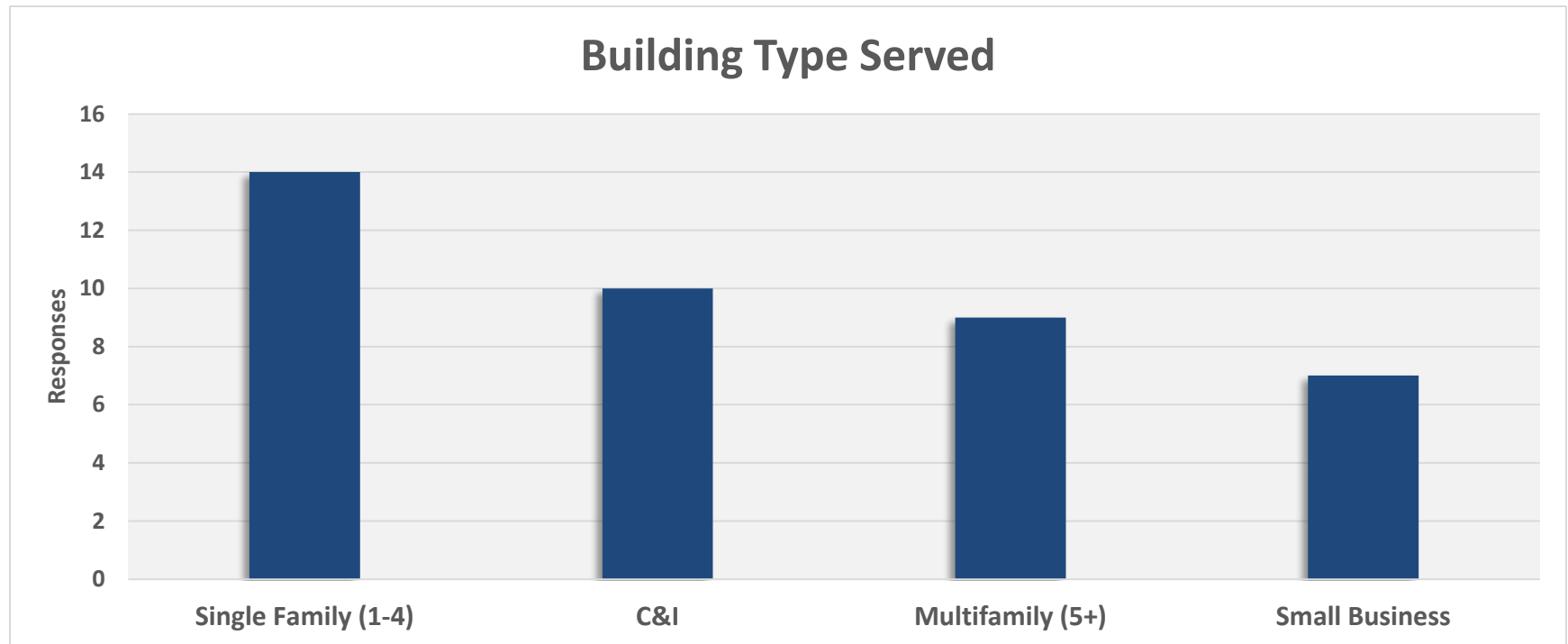
Company	Assessment Type	Sector
Avangrid	Remote	Residential, Income Eligible
Center for EcoTechnology	Remote	Residential, C&I
CLEAResult (RI - LI)	Remote	Income Eligible
CMC Energy Services	Remote	Residential, Income Eligible, C&I
Ecosystem Energy Services	Remote	C&I
Eversource	Remote	Residential, Income Eligible
Performance Systems Development	Remote	Residential, C&I
RISE Engineering	Remote	Residential
Sealed	Remote	Residential
Advanced Energy Intelligence, LLC	Virtual	C&I
ClearlyEnergy, NEEP	Virtual	Residential
Energy Hippo	Virtual	C&I
EnergyX Solutions	Virtual	Residential, Income Eligible, C&I
Home Energy Analytics, Inc.	Virtual	Residential
InversEnergy Software	Virtual	C&I
MyHEAT Inc.	Virtual	Residential, Income Eligible
Oracle/Opower	Virtual	Residential, Income Eligible
SourceOne	Virtual	C&I
Stroom	Virtual	Residential, Income Eligible, C&I

[illegible]

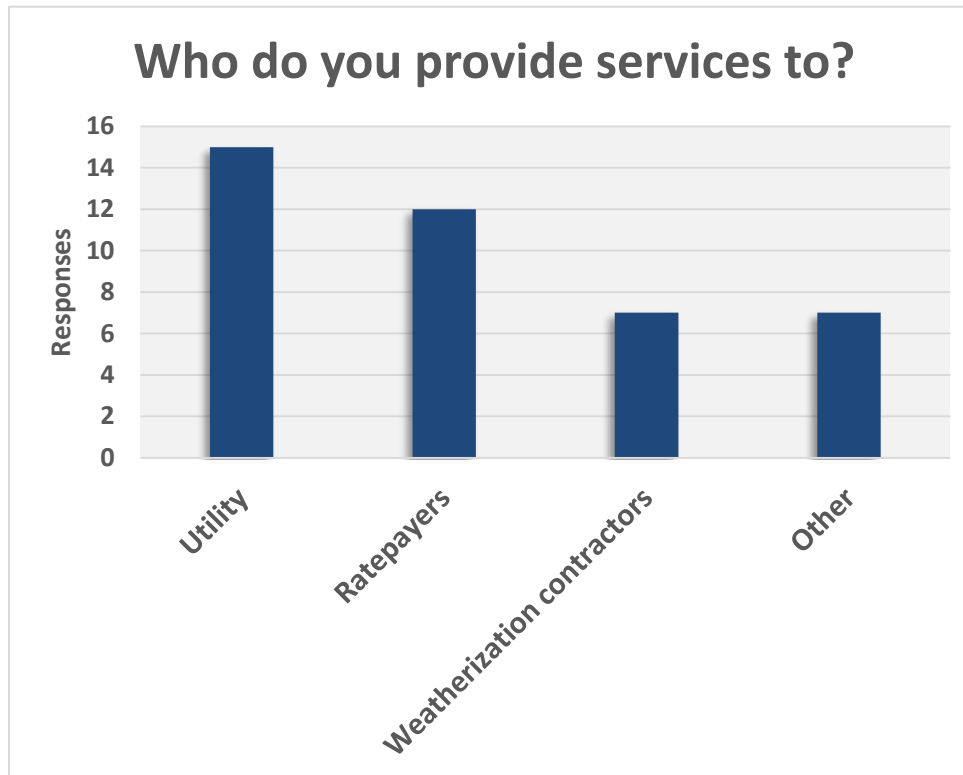
Sectors Served



Building Type Served



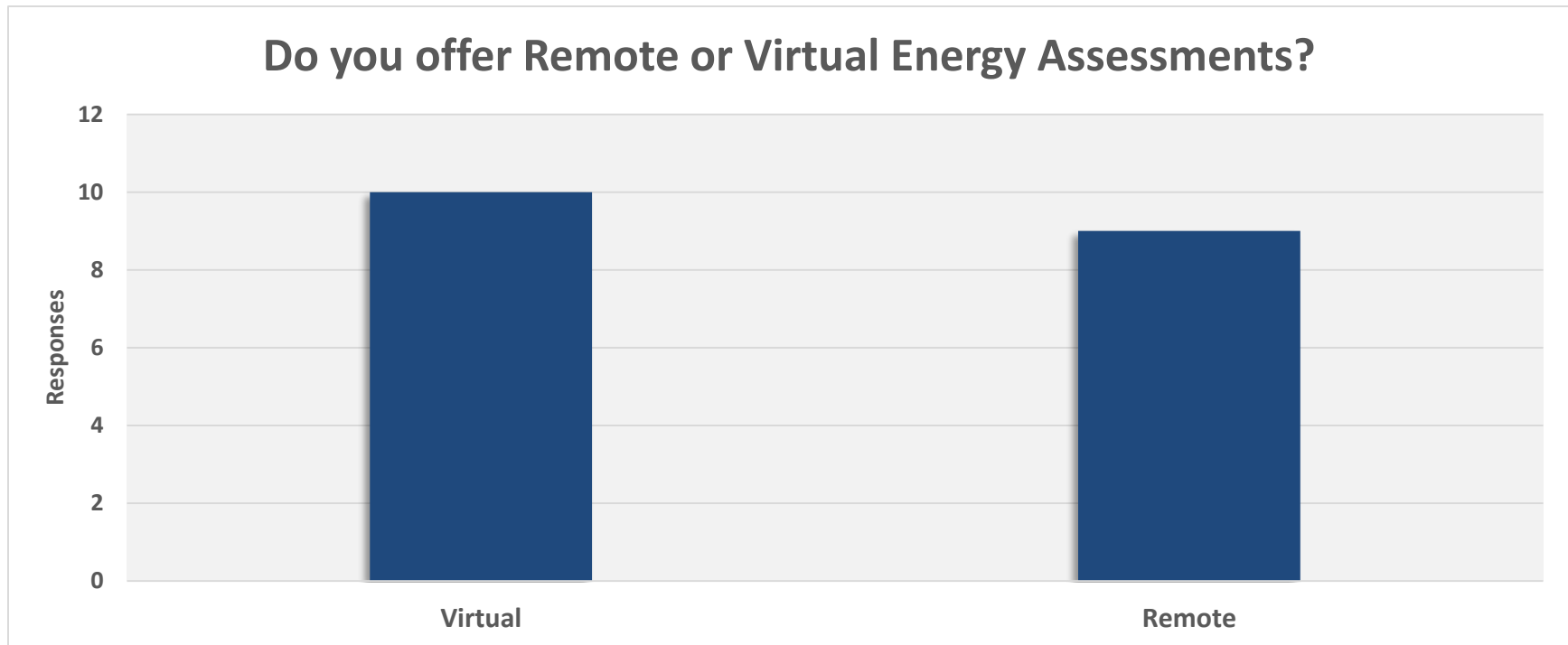
Services Provided To...



- “Other” responses included:

- Utility program implementers and incentive providers
- MUSH market
- Governments and municipalities
- End user/building owner
- Service organizations

“Virtual” vs. “Remote” Energy Assessments

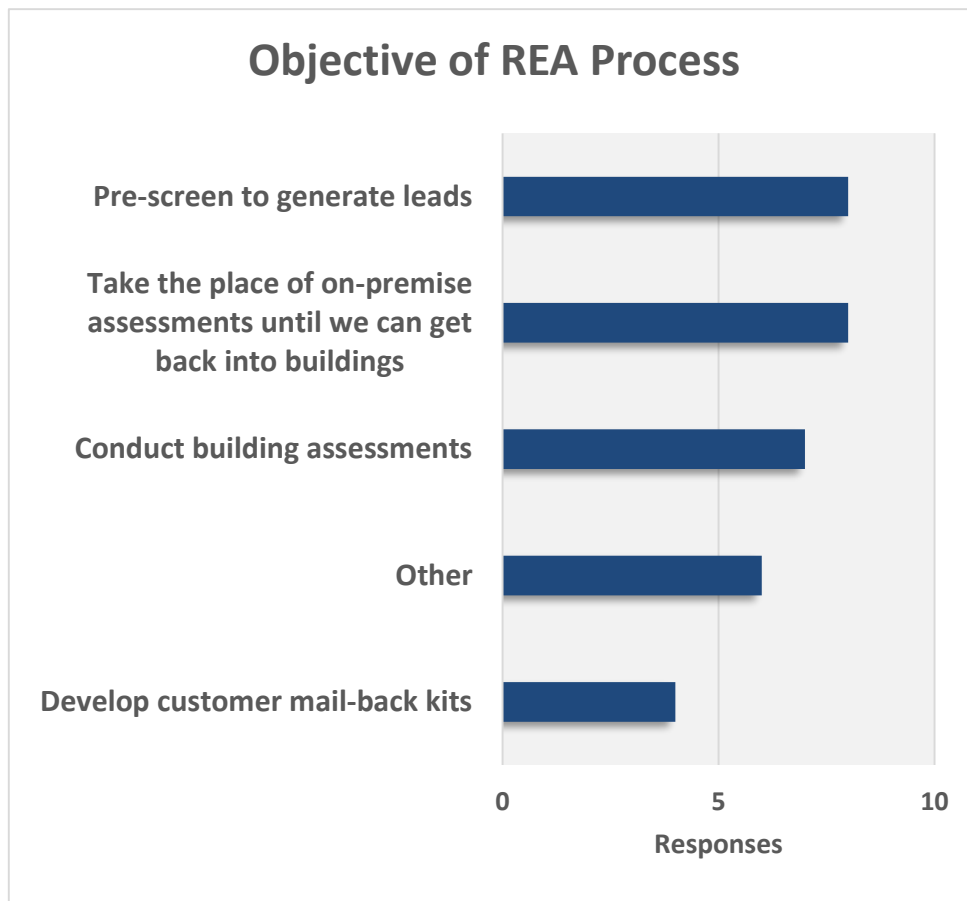




Remote Energy Assessments

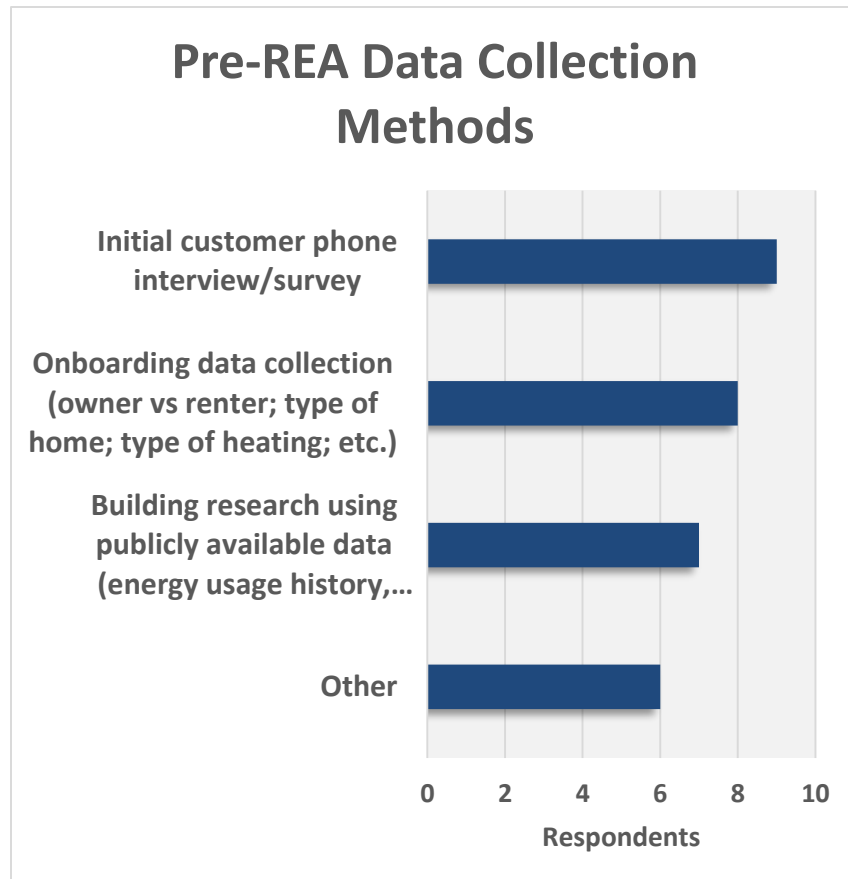
SURVEY RESULTS

Objective of the REA Process



- “Other” responses included:
 - Provide information for customers to do energy saving projects
 - Sign project agreements with homeowners
 - Help utilities save time and money by targeting the homes that have the most potential energy loss

Pre-REA Data Collection Methods



- “Other” responses included:
 - Commercial Building Asset Score data collection from facility manager for C&I and multifamily
 - Photos of specific items in the home
 - Collect and process high resolution thermal data via aircraft (VEA?)

Range of REA Products

- Greater similarity among REA products
- Most collect onboarding data and building research from publicly available data sources
- Remote assessments conducted with the customer on the phone or visual enabling technology



Key Takeaways - REA

- 9 out of 19 respondents provide REAs
- Most use REAs as a way to generate leads and to take the place of on-premise assessments while those are unavailable
- REAs are using technology that customers already have access to
 - Smart phones, tablets, and computers
- 4 of the 9 REA providers surveyed provided a customer kit – some of which included lighting, smart strips, showerheads, and aerators
- Most of the REAs last about 1-2 hours with the customer
- Most utilize property tax assessor and utility data, which can be supplemented with Google Maps or other tools
- This is new territory for most providers; some have piloted REAs, but there is not a lot of widespread experience

Opportunities - REA

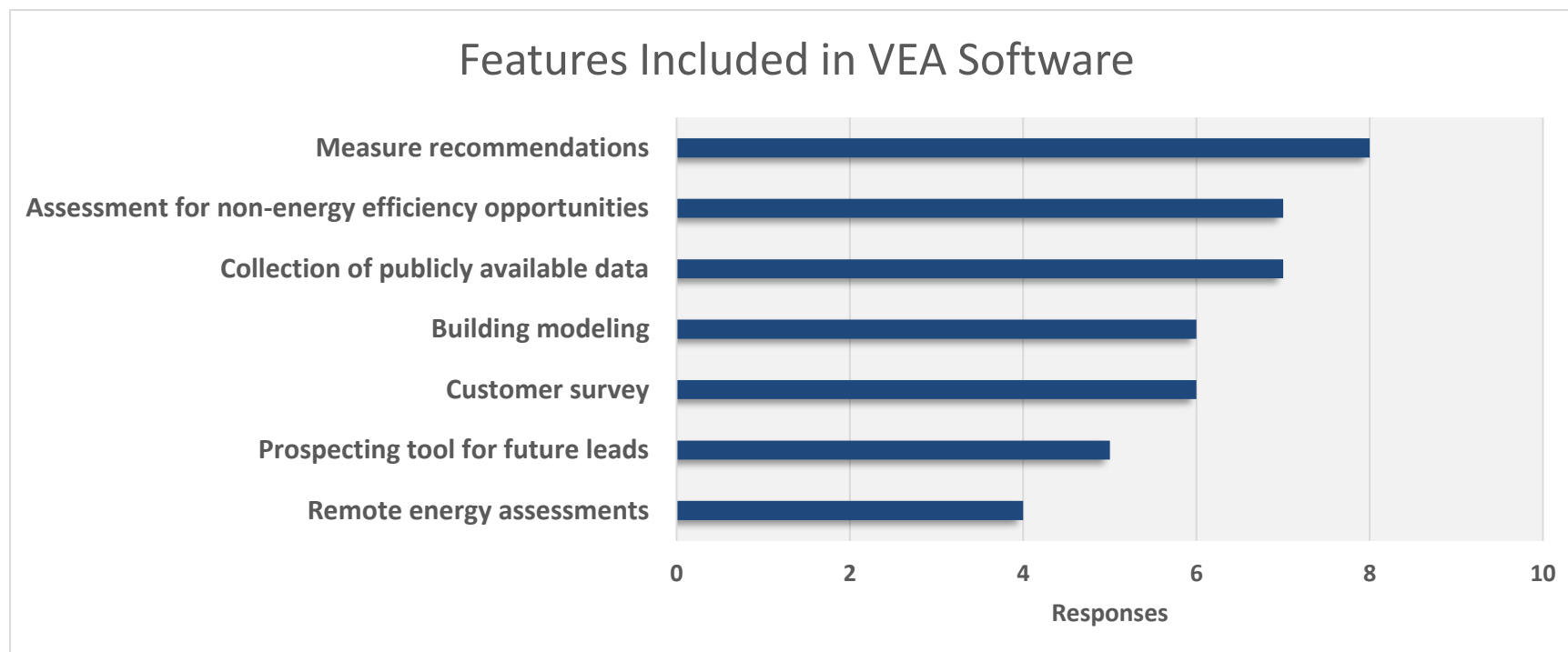
- Many people have the availability to spend an hour on the phone for an audit during Covid – a great time to line up a pipeline of future projects
- Establish and support customer rapport
- Opportunity to customize mail-out kits to provide energy improvements without entering the home
- Make in-premise programs more cost-effective by assessing weatherization barriers (e.g., mold, asbestos, lead etc.) before rolling the truck



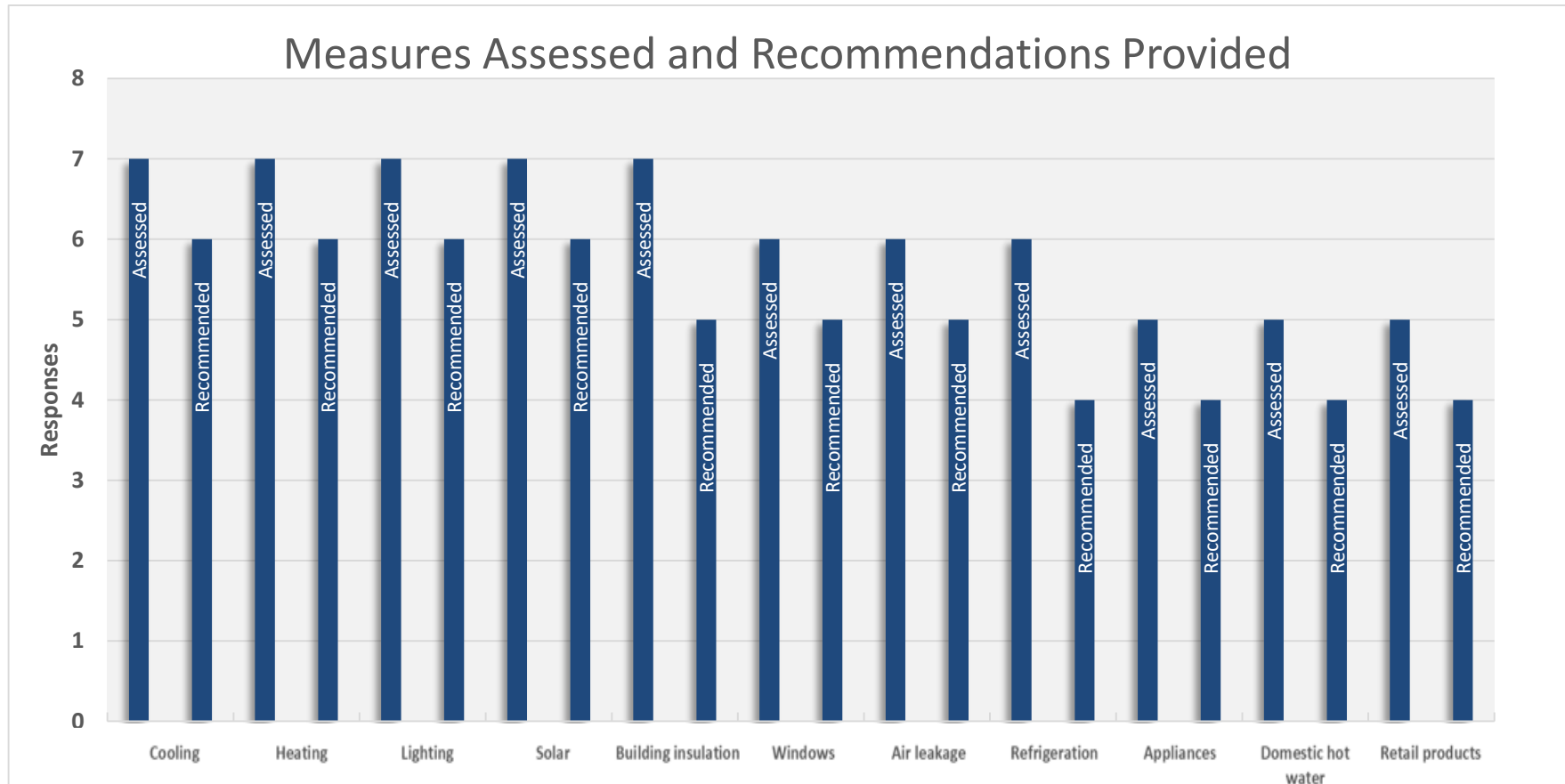
Virtual Energy Assessments

SURVEY RESULTS

Features Included in VEA Software

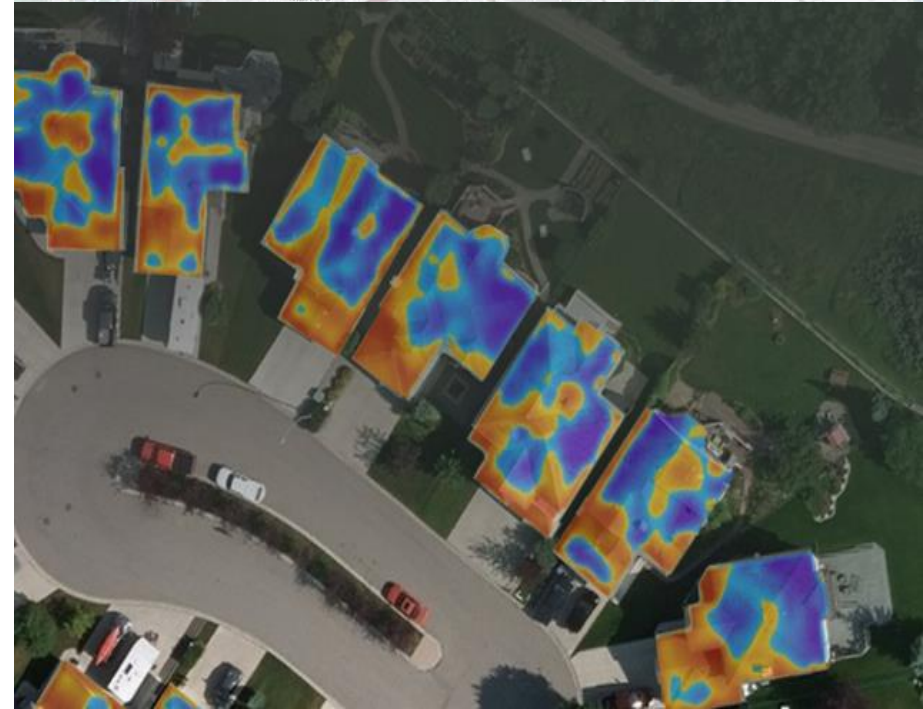
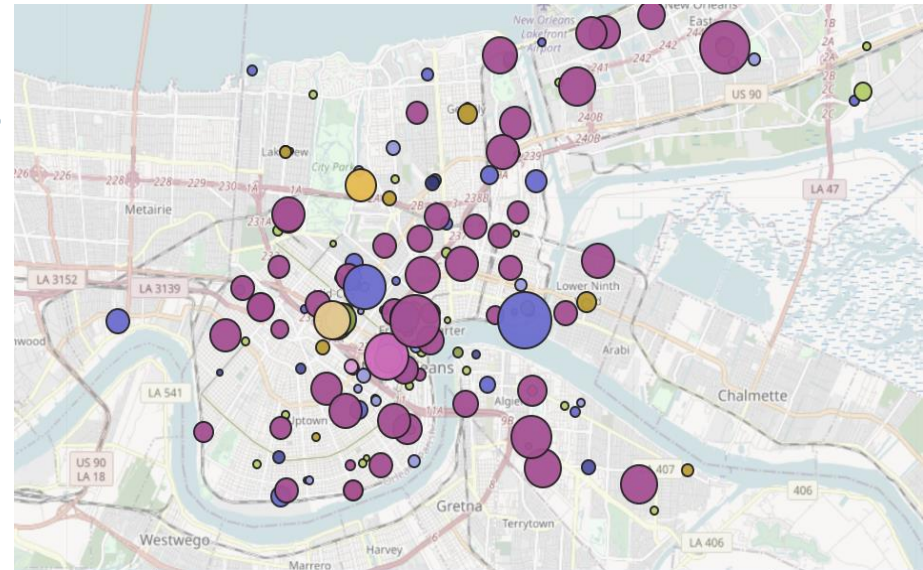


Measures Assessed & Recommendations



Range of VEA Products

- Greater variation in the range of VEA products surveyed
- One product pulls from utility bills and interval data and presents outcome in web-based portal
- Another collects thermal data and processes it into a heat loss map for cities



Key Takeaways - VEA

- 10 out of 19 respondents provide VEAs
- VEAs may require a longer lead time to establish, but once set up can assess buildings rapidly
- C&I VEAs primarily look at utility data and interval (smart or AMI meter) data at the building level, then most are supported with some basic customer input about their building
- Most residential VEAs involve a simple customer questionnaire supplemented by utility or tax assessor building information to generate recommendations or pre-screen customers

Opportunities - VEA

- VEAs are accessible – designed to be used and understood by the average person and generate an equally understandable report
- There are multiple VEA approaches and options to be considered, some of which may be complimentary
- Some VEAs have a track record for verification of results
- As lighting savings go away, VEAs may provide an opportunity to prospect and screen for eligible customers cost-effectively

Next Steps


- Share and review detailed spreadsheet of survey results
- Consider multi-state joint Request for Information (RFI) to gather more information
- Evaluate current efforts
- Incorporate remote and virtual energy assessment elements in development of 2021 program designs



Richard Faesy

PRINCIPAL

@ rfaesy@energyfuturesgroup.com

 (802) 482-2812

 **energyfuturesgroup.com**



Stephanie Weiner & Ryan Behling
New England Smart Energy Group



Remote Energy Assessments

Presented by Stephanie Weiner and Ryan Behling

Pre- Remote Assessment

- First contact: Establish a date and time for the assessment and discuss basic expectations, collect contact information and basic information on the home
- Explain CT in-home services that will follow, which includes weatherization, lighting upgrades, rebate assignment, etc.
- Request relevant photos in advance
- Establish a means of video conferencing and set up the conference in advance
- Follow up with a confirmation email to solidify the appointment, photos & technology needed, etc.
- Review customer's photos to get a feel for what is going on in the home, and the customer's concerns
- Collect preliminary information on the home through online resources such as Zillow and Google Maps (see slides 3 & 4)

Real Estate Databases



502 Preston Ave
Meriden, CT 06450

2 beds · 2 baths · 936 sqft

SOLD: \$136,564


Sold on 08/23/17


Zestimate®: \$148,600


Est. refi payment: \$811/mo

[Get current rates](#)

Facts and Features

 **Type**
Single Family


 **Cooling**
Central

 **Lot**
0.31 acres

 **Year Built**
1955

 **Parking**
2 spaces

 **Heating**
Baseboard

 **MOA**
No Data

INTERIOR FEATURES

Bedrooms

Beds: 2

Bathrooms

Baths: 1 full, 1 half

Heating and Cooling

Heating: Baseboard

Heating: Gas

Cooling: Central

Attic

Attic

Appliances

Appliances included:

Range / Oven, Refrigerator

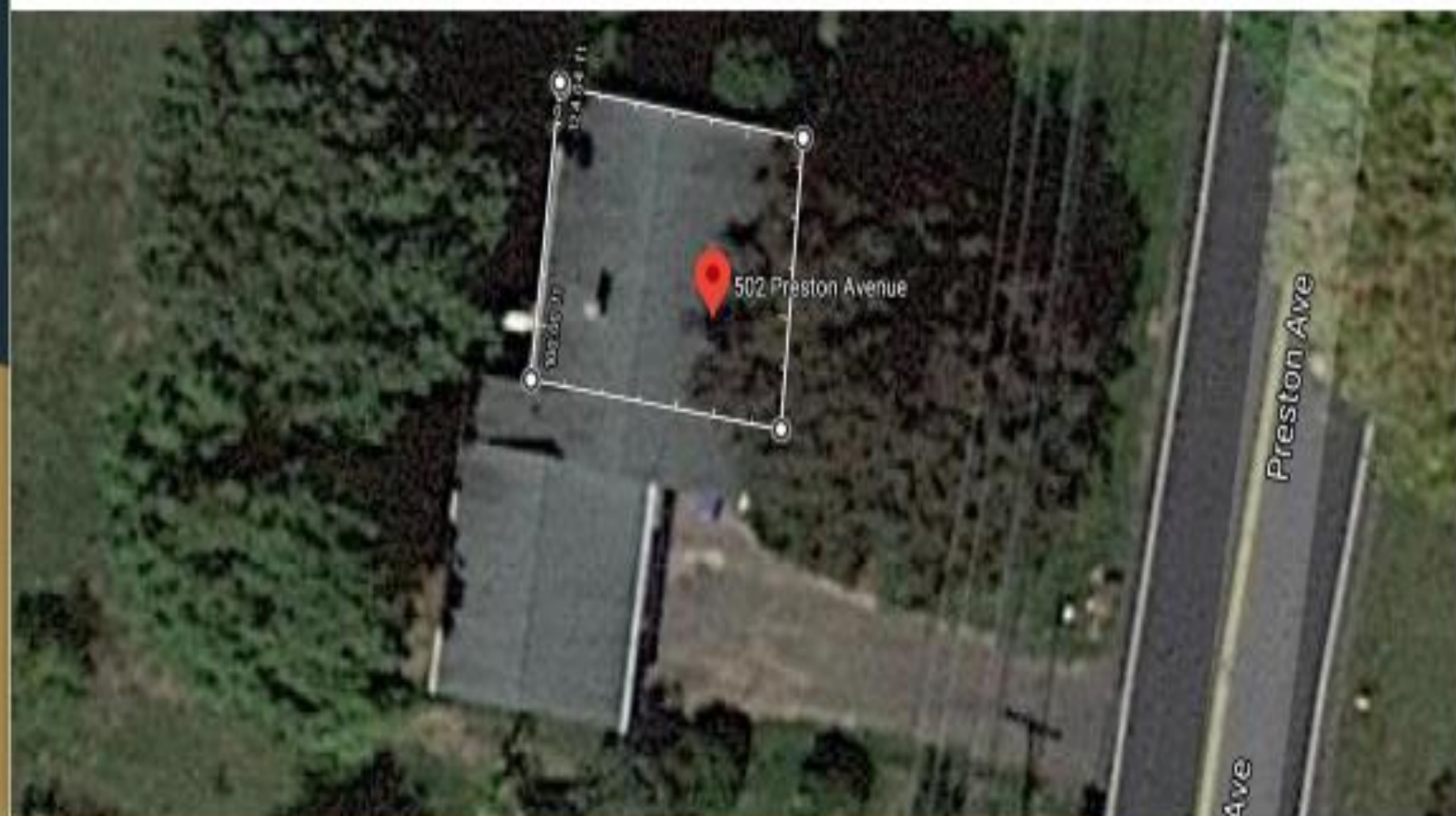
Flooring

Floor size: 936 sqft

Flooring: Hardwood

Alma: This property is not currently for sale or for rent on

Use Satellite Images to Measure Area



Good Platforms for Video Conferencing

- Can be used from a PC or mobile device
- Have the ability to record conferences for review, feedback, quality control, etc.
- Have the ability to send access to the customer in advance
- Have the ability to share your screen with the customer
 - Show them images to help identify safety barriers such as asbestos, mold, etc.
 - Specific products that you may be recommending such as LEDs
- Recommended platforms include Zoom and Google Duo, others may work as well

During the Remote Assessment

- Verify Contact Information & Basic Home Information
- Physically walk through the home with the customer while discussing their concerns and collecting info, try to assess the needs of the home from what you can see and what they can tell you
- Identify status (age, condition, issues) for relevant systems in home (Insulation, Windows, HVAC, Appliances, Lighting, Weatherization, Etc...)
- Discuss recourse for possible issues or opportunities for improvement
- Determine what kind of additional support is needed, and establish a plan for moving forward. In most cases this includes a more thorough in-home assessment with blower door guided air sealing, rebate assignment, lighting upgrades, duct sealing, etc.
- Identify instant savings measures that can be mailed out to the customer (LEDs, Advanced power strips, etc...)

Potential Barriers

- Customer doesn't have proper technology or is not comfortable using it
- Language barriers
- Barriers to access certain areas in the home
- Selling customers on a remote assessment when in-home services are now available

Post- Remote Assessment

- Generate report from the remote assessment and send to customer, summarizing identified opportunities. Re-state whatever follow-up measures were discussed and how they will be implemented
- Mail out any instant savings measures (in our program LED's and Power Strips) that were identified during the remote assessment
- Schedule in home visit; confirm customer received report and answer any questions

Recommendations and What We've Learned

- Be Flexible!
- Utilize information pre-VPA to shorten the length of time the video chat occurs (photos, online databases, etc.)
- Set expectations for upcoming in-person assessment, including COVID-19 safety procedures to make customer feel more comfortable
- Utilize VPA to start discussing recommendations and educating customer on the benefits of deeper measure upgrades, educate on rebates/incentives/products/measures available
- Establishing a mechanism to carry over data collected from VPA to site visit to avoid duplicate entry for contractors

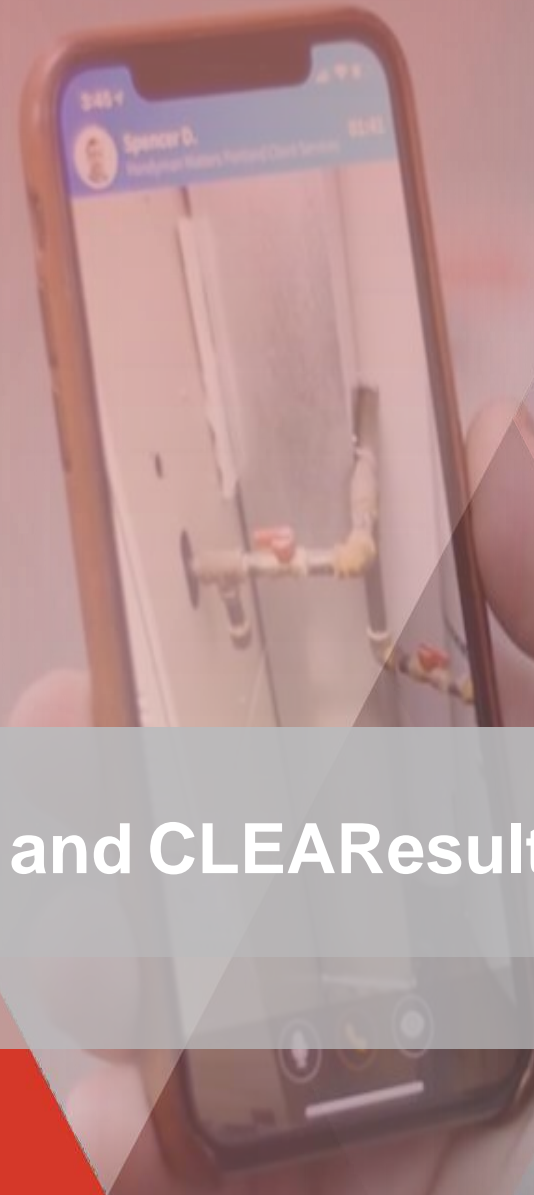
General Experience

- The VPA can be data collection heavy, unengaged customers will quickly lose interest
- Customer ease with technology and technology availability is very important. Therefore it may be difficult with certain demographics
- More experience leads to streamlined processes and shorter VPA time (~1.5 hour to 1 hour in total resources)
- Identification/screening of opportunities, health and safety barriers, and customer engagement level, helps set customer expectations regarding the scope of work, estimated time, etc.
- Utilize information gathered at VPA to schedule in home assessment - i.e. - not much opportunity, short visit, maybe one technician/lots of opportunity; full day job will help contractors utilize their resources more effectively & efficiently
- We've seen high levels of customer satisfaction for those that have opted in to the VPA
- Great tool for customer relationship management. Additional engagement builds value for leveraging site visit and customer retention, they know and like us.



Dan Ridings
CLEAResult

CLEAResult®

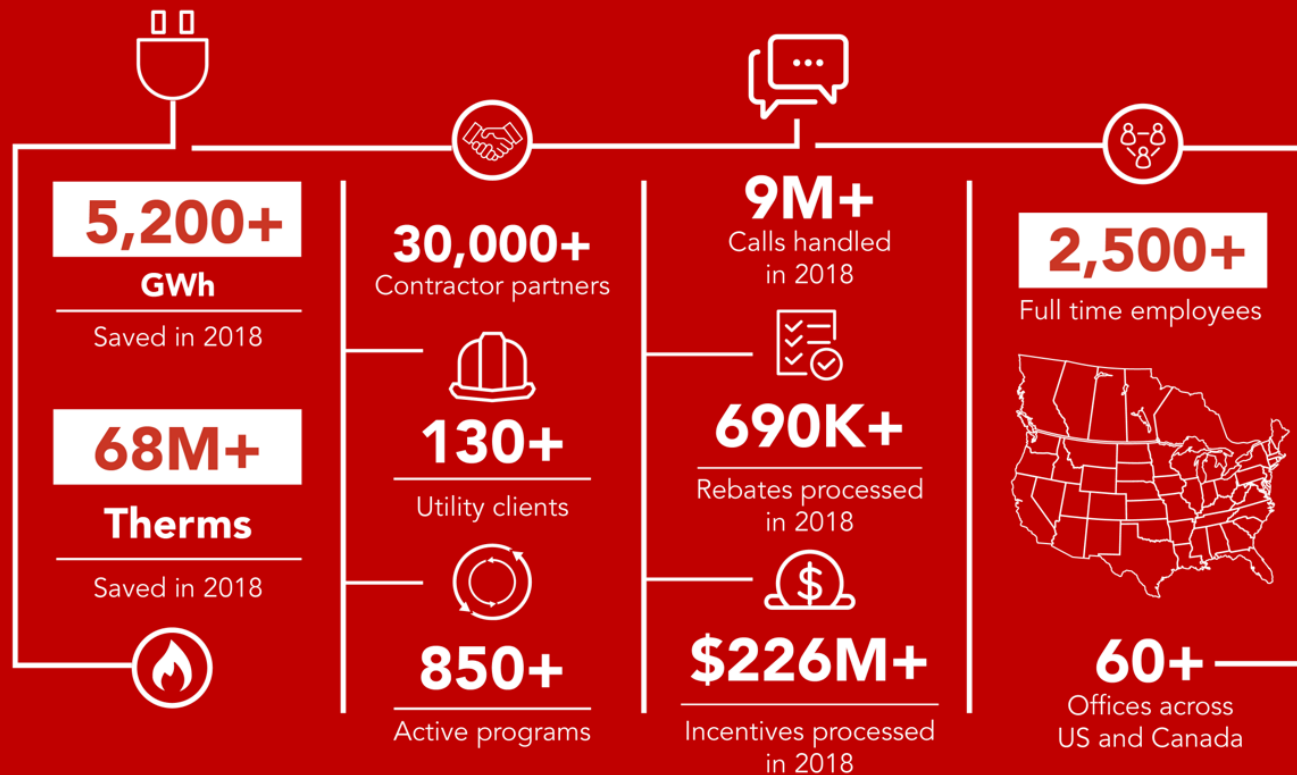


Innovating Together: TVA and CLEAResult

Presented by Dan Ridings

Vice President - Virtual Delivery & Partnerships

SCOPE AND SCALE. WHY IT MATTERS...



CLEAResult®

© CLEAResult. All rights reserved. 2

The background of the slide features a blurred image of a person's hands holding a smartphone. The person is wearing a light blue button-down shirt. The image is overlaid with semi-transparent geometric shapes in shades of red and grey, creating a modern, tech-oriented aesthetic.

THE TIME IS NOW – A Critical Moment

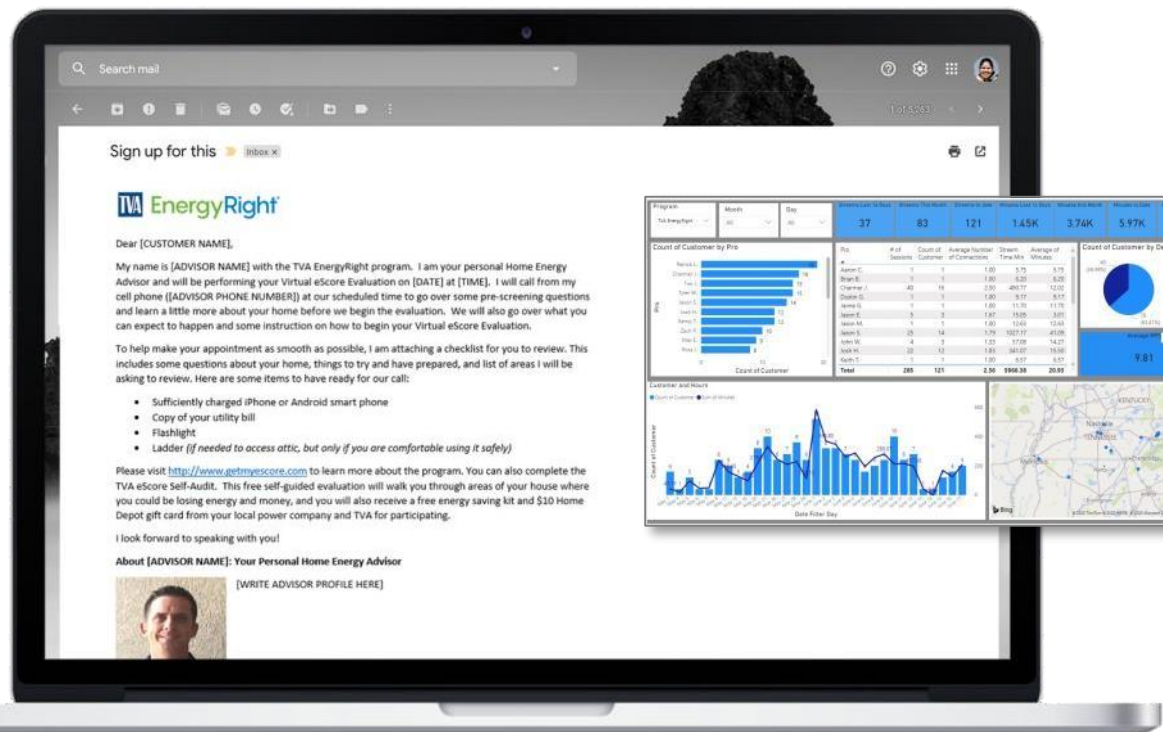
CLEARResult is partnering with utilities to bring innovative, resilient virtual solutions to market to support our clients, contractors, and customers.

TENNESSEE VALLEY AUTHORITY

- ✓ Nation's **largest** public power producer
- ✓
 - **80,000** square-mile service area across seven states
- ✓
 - **154** local power company partners
- **10 million** residents



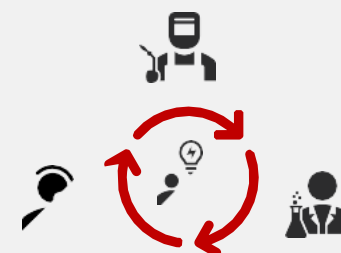
LEARNING



SO FAR...

- 43 trained users
- Hundreds of virtual assessments to date
- 7,000+ minutes logged in virtual engagements
- 96+ net promotor score
- Key points

- Practice makes perfect!
- Battery life and signal matter
- Set expectations & follow-up
- Compared to Teledoc
- Uses beyond assessments



PEOPLE LIKE IT



“

It was really easy to get started. [...] I could talk to my auditor the whole time we worked together, and he could see what I could see.
He told me exactly what we were looking at and made it really easy.

- Mary Day, Tradewind Group



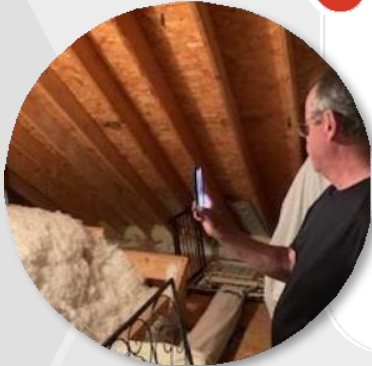
”

“

We started outside and the [Home Energy Advisor] directed me to specific areas such as windows and doors and he took pictures through my phone [...] He directed me under the crawlspace where he made a few observations and took additional pictures. From there, he directed me inside and took pictures of the attic, accesses, HVAC registers, appliances, water heater, etc.

I don't feel like he missed seeing any detail he could have seen in-person.

- John Purcell, (Retired)
Energy Services Manager, Nashville Electric Service

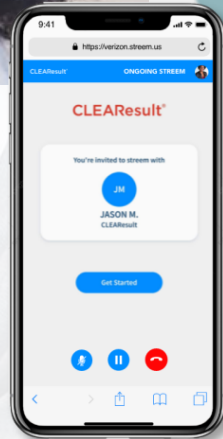


”

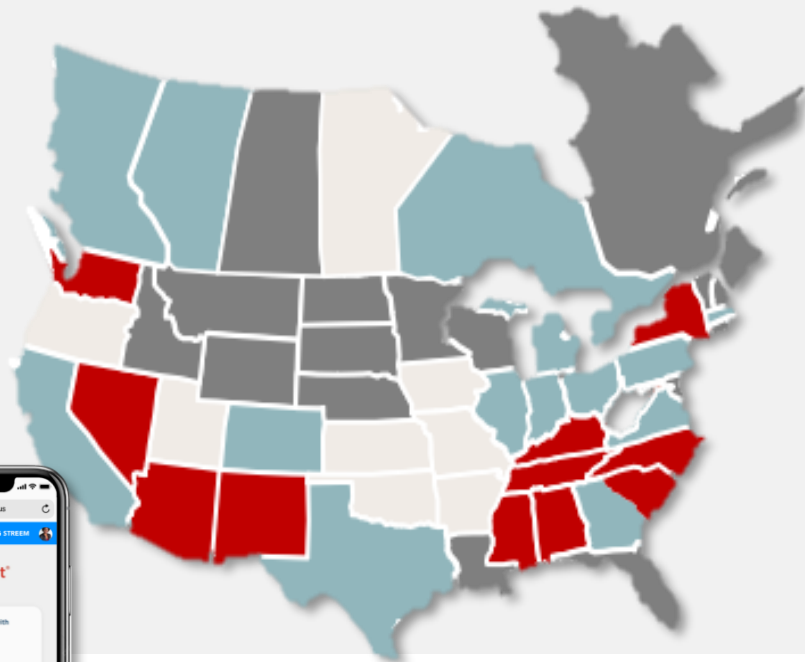
SERVING CUSTOMERS – No matter what



In the last 90 days, CLEAResult has been working collaboratively with residential and C&I programs across north America develop ways to engage with customers virtually.



Virtual Pilot Deployment Pipeline

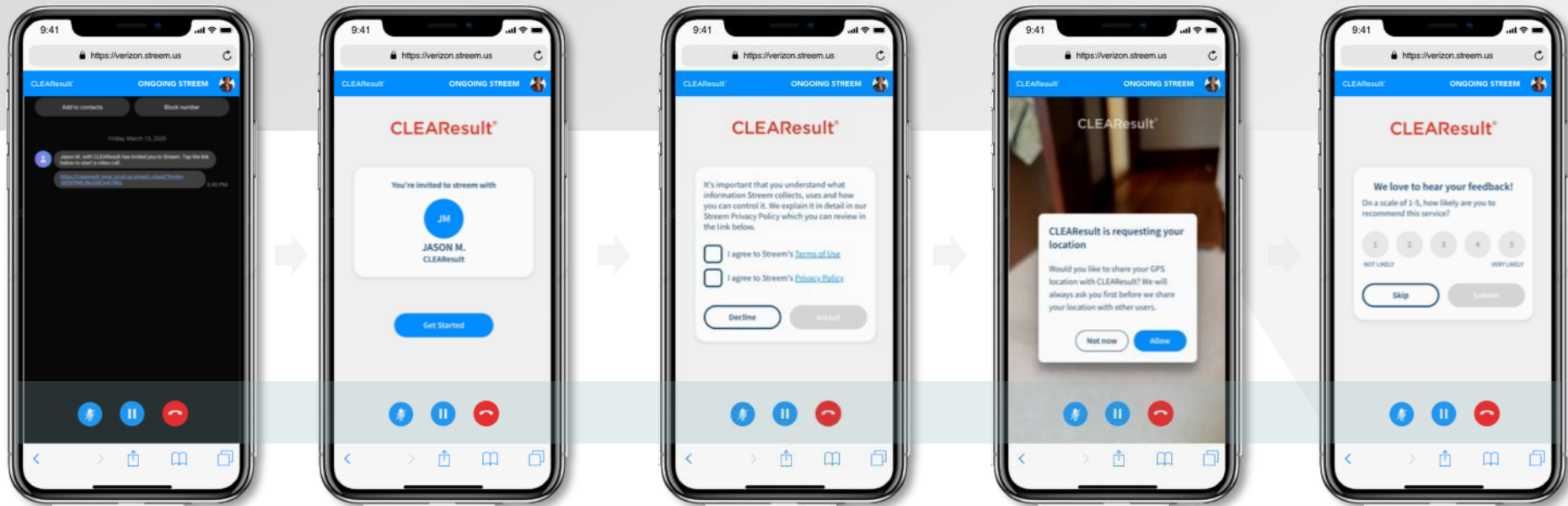


- Residential Interest
- Commercial & Industrial
- Residential and C&I

VIRTUAL ASSESSMENT – New Solution

Virtual Assessment is a new solution that respects customer privacy and choice.

Customers are in control every step of the way, with the ability to **pause video or audio** at their fingertips at all times.



SMS Link
Feedback

Invitation to Stream

Permissions

Request to allow GPS

VIRTUAL ASSESSMENT

CLEARRESULT'S **Virtual Assessment** is a live augmented reality (AR) remote support platform that enables:

- ✓ Remote energy advisor-guided home assessments
- ✓ Direct customer engagement
- ✓ Faster EE initiative rollouts for utilities
- ✓ Lower costs for everyone

VIRTUAL ASSURANCE

Virtual Assurance removes the time between installation and inspection, enables lower program costs, and increases convenience for customers.

- ✓ Remotely view any in-progress installation
- ✓ Guide the participating contractor through the inspection
- ✓ Correct issues in real time
- ✓ Capture the required data for the program

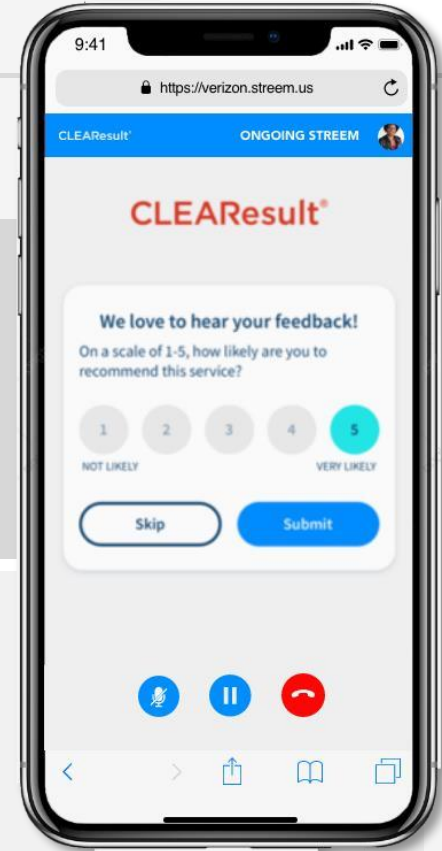
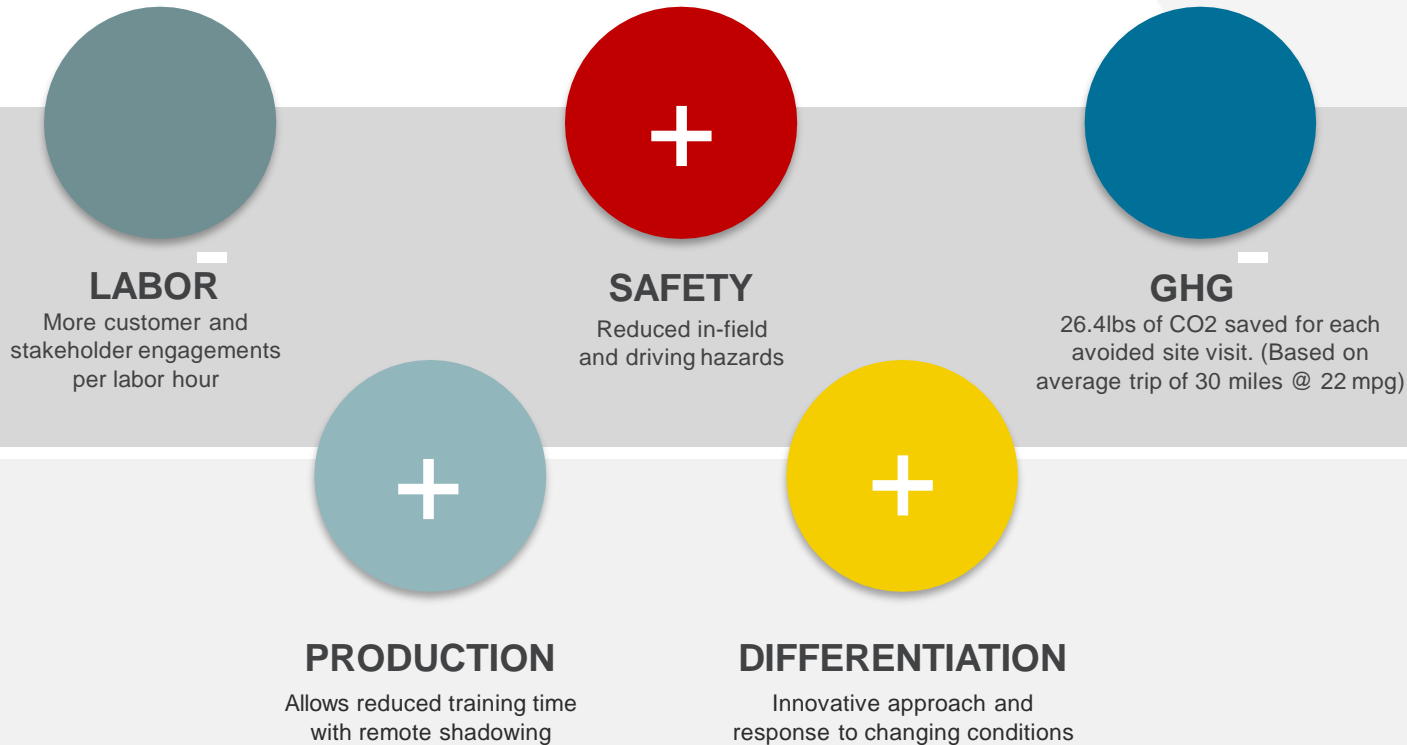


VIRTUAL ASSESSMENT – A Remote Solution

CLEAResult's Virtual Assessment is the most advanced remote expertise platform on the market powered by true augmented reality features.

FEATURE		VIRTUAL ASSESSMENT	OTHERS
True AR	Computer vision identifies and maps objects in a space, creating a shared experience within the customer's environment for improved collaboration	✓	NO
Spatial Mapping	Creates an accurate & interactive 3D mesh of the home (via iOS app)	✓	NO
3D Intelligent Photos	Review, markup, & store spatial maps w/ remote measurements & more, AR data, object & character data—all captured in the high-resolution image	✓	NO
Custom Machine Learning	Computer vision is trainable—can recognize custom objects, products, & context	✓	NO
OCR & Object Recognition	Recognizes objects and captures serial/model numbers automatically	✓	NO
AR Walkthroughs	Guides customers with AR instructions that anchor to their environment	✓	NO
Mobile AR	A full AR experience, directly through a mobile phone browser	✓	NO

VIRTUAL ASSESSMENT – Recap on Value Proposition Points



Energy Estimator – Powered by HELIX & ClearlyEnergy

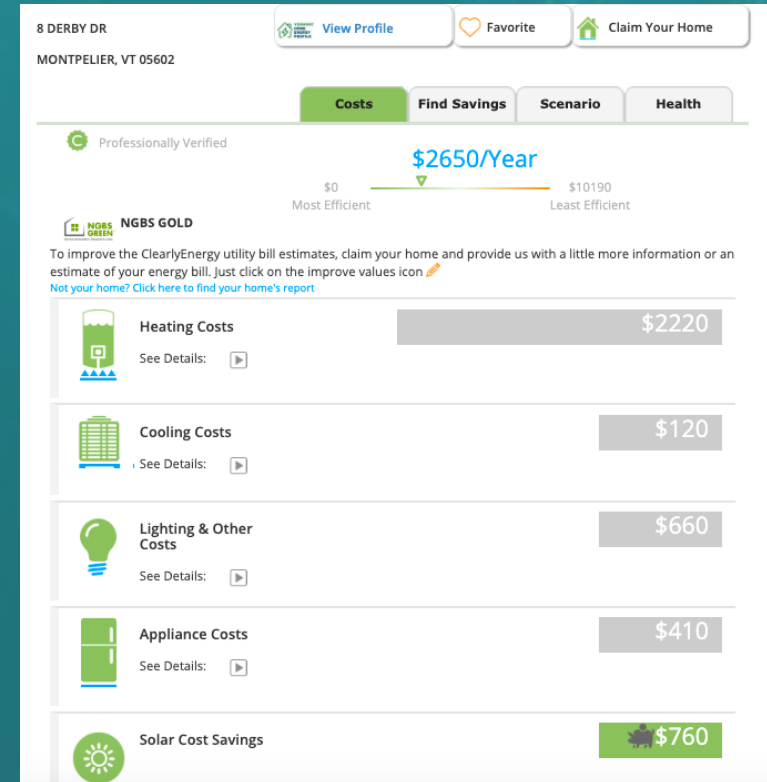
A Joint Tool Developed by NEEP & ClearlyEnergy



- Virtual energy audit performed jointly by homeowner and contractor:
 - Educational tool with easily understood audit questions
 - Secure login, home claim, and lock process
- Automated baseline estimate uses tax assessor data (age, size, type, primary fuel, ac...) & HELIX for solar and home labels
 - Adding home energy features and/or utility bill data refines baseline estimate
- Targeted efficiency improvement recommendation logic
- Energy profile pdf highlights energy features
 - HELIX will be leveraged as a repository to store the profile (as well as recognize work the home has already gone through).
- Custom savings page with links to incentives, professionals, product sites, etc.

Resources:

- Energy Estimator [Webpage](#); [One Pager](#)
- [HELIX](#): Created using a U.S. DOE SEP grant and developed with input from regional working groups, HELIX provide states with a repository to store home energy labels, certifications, and solar PV data. This database is designed to automatically populate real estate listings with home energy information.



Energy professionals can review audited homes, share the customized energy report with homeowners and proceed to contracting

For More Information, Contact:
Bryan Evans, bevans@neep.org

Better Buildings Summer Webinar Series



BEHIND THE METER DISTRIBUTED ENERGY RESOURCES:

BEST PRACTICES FOR INTEGRATING DERS
INTO COMMERCIAL BUILDINGS

REGISTER TODAY > 1:00 - 2:00 PM ET

NEXT-GENERATION BUILDING PERFORMANCE POLICIES: MAXIMIZING ENERGY SAVINGS AND ENVIRONMENTAL IMPACTS

Thu, July 16, 2020 | 1:00 - 2:00 PM ET

REGISTER TODAY >



EVERYONE HAS A DATA CENTER:

HOW TO BE AN ENERGY
CHAMPION FOR YOURS

Tue, July 28, 2020 | 3:00 - 4:00 PM ET

REGISTER TODAY >



PROGRAM DESIGN WITH EVERYONE IN MIND:

LOW-INCOME SOLAR PROGRAM
STRATEGIES

Thu, July 9, 2020 | 3:00 - 4:00 PM ET

REGISTER TODAY >



STRATEGIES TO COMBINE ENERGY + HEALTH UPGRADES IN MULTIFAMILY HOUSING

Thu, July 21, 2020 | 1:00 - 2:00 PM ET

REGISTER TODAY >



SUCCEED WITH SUBMETERING:

HOW TO MAKE THE BUSINESS CASE

Tue, Aug 11, 2020 | 1:00 - 2:00 PM ET

REGISTER TODAY >

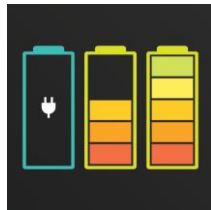


THE DYNAMIC DUO:

UNLEASH PUBLIC SECTOR ENERGY
SAVINGS WITH FINANCING AND
TECHNICAL ASSISTANCE

Tue, July 14, 2020 | 3:00 - 4:00 PM ET

REGISTER TODAY >



CASE IN POINT:

OREGON'S RECENT EFFORTS TO REDUCE
PLUG LOAD ENERGY CONSUMPTION

Wed, July 22, 2020 | 1:00 - 2:00 PM ET

REGISTER TODAY >

<https://betterbuildingsolutioncenter.energy.gov/better-buildings-webinar-series>

Explore the Residential Program Solution Center

Resources to help improve your program and reach energy efficiency targets:

- [Handbooks](#) - explain *why* and *how* to implement specific stages of a program.
- [Quick Answers](#) - provide answers and resources for common questions.
- [Proven Practices](#) posts - include lessons learned, examples, and helpful tips from successful programs.
- [Technology Solutions](#) **NEW!** - present resources on advanced technologies, **HVAC & Heat Pump Water Heaters**, including installation guidance, marketing strategies, & potential savings.



<https://rpssc.energy.gov>

Thank You!

Follow us to plug into the latest Better Buildings news and updates!



[Better Buildings Twitter](#) with [#BBResNet](#)



[Better Buildings LinkedIn](#)



[Office of Energy Efficiency and Renewable Energy Facebook](#)

Please send any follow-up questions
or future call topic ideas to:
bbresidentialnetwork@ee.doe.gov